Solar Energy and Building Physics Laboratory LESO-PB

LESO LUNCHTIME* LECTURES

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Modelling & optimizing building solar energy potential and energy consumption via urban morphological study

Ivan Poon

PhD student at National University of Singapore, Postgraduate researcher at Solar Energy Research Institute of Singapore

Introduction by Dasaraden Mauree – Followed by open discussion

Summary

In 2014, the Singapore government announced plans to increase the adoption of solar power, including by integrating solar PV systems into the urban environment. To deploy solar panels in the urban environment effectively, careful planning of neighbourhoods at the early design stage is important as the effective deployment is dependent on the contextual built environment and the overall urban morphology at a larger scale. However, there is a lack of tools to estimate the solar energy potential of a new planning zone. As urban morphology on neighbourhood scale has significant impact on both building solar energy potential and energy consumption, Ivan's study is to build a morphological based building solar energy and energy consumption predictive model by machine learning and an optimization model that can maximize the solar energy contribution to buildings' energy consumption of a neighborhood in Singapore context. It is anticipated that the results of this study will be useful for urban planners considering urban PV integration for sustainable cities.

About the speaker

Ivan is currently a PhD candidate at the National University of Singapore and a researcher with the Urban Solar Group of the Solar Energy Research Institute of Singapore. His research interests include district scale building energy model development, building solar energy potential simulation and urban morphology study. Ivan has almost five years working experience in the sustainability industry. Prior to his PhD studies, Ivan was part of the management consulting team of Arup Hong Kong. He also worked for Siemens, Hong Kong Green Building Council and Mott Macdonald.

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*Presentations are followed by drinks & snacks, to give the opportunity to guests and speaker to further discuss the topic.

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